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Question Paper Code : 40453

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2025.

Sixth Semester

Computer Science and Engineering

CS 8601 — MOBILE COMPUTING

(Common to Computer Science and Business Systems)

(Regulations 2017)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Draw the protocol stack for a mobile communication system.
2. Define location aware service citing one application.
3. State the reasons for handover in GSM.
4. Illustrate state machine between sender and receiver using MACA.
5. List the characteristics of secured mobile ad-hoc network.
6. Differentiate proactive and reactive protocols citing with one example each.
7. How is the over-the-air traffic and resource consumption reduced in a handheld device?
8. State the significant features of WML.
9. Mention the tools and languages needed to develop Android App.
10. How are messages exchanged in M-payment systems?

PART B — (5 × 13 = 65 marks)

11. (a) (i) How is the medium shared with minimum interference to more number of users? (7)
- (ii) Identify and apply this concept to explain as to how the radio stations within the same region are tuned by different users without interference. (6)

Or

- (b) Explain as to how the user signal of 1 MHz is spread using 11 chip barker code and transmitted using a DSSS transmitter and retrieved at the receiver using suitable waveforms and diagrams. Also, highlight on as to how spreading the bandwidth is advantageous during transmission?
12. (a) Explain the GSM processes involved in
- (i) Locating a mobile station. (6)
- (ii) Connecting the calling station to the mobile station using suitable diagrams. (7)

Or

- (b) Elaborate on the authentication and encryption services provided by GSM.
13. (a) Explain Dynamic Host Configuration Protocol (DHCP) initialization, client configuration and authentication using suitable diagrams.

Or

- (b) Discuss the routing algorithm Dynamic source routing (DSR) using suitable examples.
14. (a) Explain how the packets are delivered in a mobile IP network using a suitable example.

Or

- (b) (i) What are the basic objectives of WAP and how is it secured? (4)
- (ii) Explain the components and interfaces in the WAP architecture. (9)
15. (a) Describe the commercial mobile OS and highlight the significant features of each OS.

Or

- (b) Explain the design issues involved in developing a mobile application in Google Android Studio.

PART C — (1 × 15 = 15 marks)

16. (a) Design a smart healthcare mobile based patient monitoring system by using appropriate spread spectrum technique, MAC protocol, mobile IP for mobility, WAP and portable Wi-Fi hotspots. Suggest suitable techniques and protocols along with their functionality.

Or

- (b) Develop a smart city app for navigation and public safety by using MAC protocols, MANET, VANET, GSM and iOS. Relate the functionality of each component in developing the application.
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